

IN THE CLAIMS:

Please CANCEL claim 18 without prejudice to or disclaimer of the recited subject matter.

Please AMEND claims 1-5, 8, 9, 11-17 and 19 as follows. A marked-up copy of the amended claims showing the changes made thereto, is attached. Note that all the claims currently pending in this application, including those not presently being amended, have been reproduced below for the Examiner's convenience.

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1. (Amended) An aberration changing optical system for changing an aberration, said optical system comprising:

an optical element having at least one of a cylindrical surface and a toric surface, said optical element being rotatable about an optical axis of said optical system and being tiltable relative to the optical axis.

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2. (Amended) An aberration changing optical system for changing an aberration, said optical system comprising:

an optical element having different refracting powers in two orthogonal directions or having a refracting power only in one direction, said optical element being rotatable about an optical axis of said optical system and being tiltable relative to the optical axis.

3. (Amended) An aberration changing optical system according to Claim 1 or 2, further comprising a plurality of optical elements each being rotatable and tiltable, and wherein said optical elements are selectively used to change the aberration.

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case  
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4. (Amended) An aberration changing optical system according to Claim 1 or 2, further comprising a second optical element having at least one of a cylindrical surface and a toric surface, said optical element being rotatable about the optical axis of said optical system and tiltable relative to the optical axis, integrally with the first mentioned optical element, said second optical element further being tiltable in an opposite direction to the first-mentioned optical element.

5. (Amended) An aberration changing optical system according to Claim 1 or 2, further comprising a parallel flat plate being rotatable about the optical axis of said optical system and tiltable relative to the optical axis, integrally with the optical element, said parallel flat plate further being tiltable in an opposite direction to said optical element.

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6. An aberration changing optical system according to any one of Claims 1 - 2, wherein said optical element is mainly composed of a transparent material of one of quartz and fluorite.

7. An aberration changing optical system according to any one of Claims 1 - 2, wherein the or each surface of said optical element, having a refracting power, has a refractive power not greater than  $3 \times 10^{-7} \text{ mm}^{-1}$ .

8. (Amended) A projection system, comprising:

a projection optical system; and

an aberration changing optical system as recited in any one of Claims 1 - 2, for correcting aberration produced in said projection optical system.

9. (Amended) A projection exposure apparatus, comprising:

an illumination system; and

a projection system for projecting a pattern of a mask onto a substrate in cooperation with said illumination system, said projection system including a projection optical system and an aberration changing optical system, as recited in any one of Claims 1 - 2, for correcting aberration produced in said projection optical system.

10. A device manufacturing method, including a process for transferring a device pattern onto a wafer by use of a projection exposure apparatus as recited in Claim 9.

11. (Amended) A projection system for projecting a device pattern onto a wafer, said projection system comprising:

a projection optical system; and

an optical element for correcting aberration produced in said projection optical system, said optical element having at least one of a cylindrical surface and a toric surface, and said optical element being inclined with respect to an optical axis.

12. (Amended) A projection system for projecting a device pattern onto a wafer, said projection system comprising:

a projection optical system; and

an optical element for correcting aberration produced in said projection optical system, said optical element having different refracting powers in two orthogonal directions or having a refracting power only in one direction, and said optical element being inclined with respect to an optical axis.

13. (Amended) A projection system according to Claim 12, further comprising a plurality of said optical elements and each being rotatable and tiltable, wherein said optical elements are selectively used to change the aberration.

14. (Amended) A projection system according to Claim 11 or 12, further comprising a second optical element having at least one of a cylindrical surface and a toric surface, said second optical element being inclined with respect to the optical axis and in an opposite direction to the first-mentioned optical element.

15. (Amended) A projection system according to Claim 11 or 12, further comprising a parallel flat plate being inclined with respect to the optical axis and in an opposite direction to said optical element.

16. (Amended) A projection system according to any one of Claims 11 - 12, wherein said optical element is mainly composed of a transparent material of one of quartz and fluorite.

C3  
C4  
D<sub>3</sub> →

17. (Amended) A projection system according to any one of Claims 11 - 12, wherein the or each surface of said optical element, having a refracting power, has a refractive power not greater than  $3 \times 10^{-7} \text{ mm}^{-1}$ .

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C4  
D<sub>3</sub> →

19. (Amended) A projection exposure apparatus, comprising:  
an illumination system; and  
a projection system for projecting a pattern of a mask onto a substrate in cooperation with said illumination system, said projection system including a projection optical system and an optical system, as recited in any one of Claims 11 - 12, for correcting aberration produced in said projection optical system.

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D<sub>3</sub> →

20. A device manufacturing method, including a process for transferring a device pattern onto a wafer by use of a projection exposure apparatus as recited in Claim 19.

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REMARKS

Applicant requests favorable reconsideration and allowance of the subject application in view of the preceding amendments and the following remarks.

Claims 1-17, 19 and 20 are presented for consideration. Claims 1, 2, 11 and 12 are independent. Claims 1-5, 8, 9, 11-17 and 19 have been amended to clarify features of the subject invention, while claim 18 has been canceled without prejudice or disclaimer. Support for these changes can be found in the original application as filed. Therefore, no new matter has been added.